INPUT

RESEARCH REPORT

The Future of Network Support and Management in Germany

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The Future of Network Support and Management in Germany

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Abstract

An increasing proportion of mission critical business processes are underpinned by enterprise-wide networks comprising LANs and WANs. Hence, buyers now seek services that enable them to optimise their business processes which are underpinned by networking technology.

This study will:

- Help vendors to understand the dynamics affecting the network support and management markets
- Reveal ways in which vendors can enjoy success in the network support and management markets
- Equip vendors with information relating to user attitudes towards network support and management.

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The Future of Network Support and Management in Germany

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I

Introduction

This chapter summarizes the findings of INPUT's German Network Management and Support project. Additionally, it offers recommendations to network services vendors on ways in which they might enhance their services.

A Objectives

An increasing proportion of mission critical business processes are underpinned by enterprise-wide networks comprising LANs and WANs. Hence, buyers now seek services that enable them to optimize their business processes which are underpinned by networking technology.

This study will:

- Help vendors to understand the dynamics affecting the network support and management markets
- Reveal ways in which vendors can enjoy success in the network support and management markets
- Equip vendors with information relating to user attitudes towards network support and management.

B
Definitions

For the purposes of this project, INPUT defines network support as maintenance activities which relate to networking equipment and networking software. Activities include associated support activities such as telephone support, problem analysis and on-site support.

INPUT defines network management services as the on-going delivery of a set of activities which are required for controlling, co-ordinating and monitoring a network. Activities include traffic routing, configuration management, security management and performance management.

Network support and management are often viewed as two components within the network services lifecycle. The network services lifecycle can be split into four service types:

- Network planning and design services
- Network implementation services
- Network support services
- Network management services.

This project focuses on the two on-going services within the lifecycle, namely support and management. Planning and design and implementation services are typically viewed as 'one off' services' .

C

Research Methodology

INPUT interviewed 60 buyers of network support services in November 1997. Respondents were sampled from the financial services, manufacturing and retail sectors.

Respondents were IT Directors or IT managers employed by enterprises with annual revenues in excess of DM200 million.

Exhibit 1 splits the sample by industry.

Exhibit 1

Sample Split by Industry

Industry	Number of Respondents
Manufacturing	22
Financial Services	20
Retail	18

Sample: 60

Number of Respondents

Source: INPUT

D
Report Structure

The remaining chapters of this report are as follows:

- Chapter II is an executive summary which provides a summary of the key findings of the study

- Chapter III examines the dynamics of the network services market with a focus on the network support and management components.

- Chapter IV analyses analyzes user perceptions of suppliers of network services. Additionally, it examines the types of Service Levels Agreements (SLAs) which are made available to users of network services.

- Chapter V analyses buyer attitudes towards network support and management services provided by external suppliers.

- Appendix A illustrates user perceptions of network management vendors in more detail

- Appendix B contains the questionnaire used for this study.

E

Related INPUT Reports

Other INPUT reports which address topics related to the subjects discussed here include the following:

- The Future of Network Support and Management in the United Kingdom
- The Future of Network Support and Management in France
- IT Customer Services and Support Market Analysis, Europe 1997-2002
- Evaluation of Business Continuity Services in Germany, 1997
- German Call Center Operations, Requirements and Opportunities, 1997
- Supporting the Networked Enterprise, Europe 1996-2000.

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II

Executive Summary

This chapter summarizes the findings of INPUT's German Network Management and Support project. Additionally, it offers recommendations to network services vendors on ways in which they might enhance their services.

A

Network Management Services Offer Vendors New Opportunities

An increasing proportion of mission critical business processes are now underpinned by enterprise-wide networks comprising LANs and WANs.

Buyers seek services which will assist them throughout the lifecycle of their networks. The network services lifecycle can be split into four service types:

- Network planning and design services
- Network implementation services
- Network support services
- Network management services.

Planning and design and implementation services are 'one off' services' whereas support and management services are on-going services.

The markets for each service types are set to grow significantly over the next five years (see Exhibit II-1).

Exhibit II-1

Network Services Market in Germany, 1997-2002

	1997 (DM millions)	2002 (DM millions)	CAGR (%)
Planning & Design	800	1500	13
Implementation	2000	3000	8
Support	2700	4100	9
Management	500	2000	32
Total	6000	10600	12

Source: INPUT

Over 60% of customers have received some assistance from external vendors with planning and designing, implementing and supporting their network infrastructures. However, an increasing proportion of buyers now seek to augment their network support services with network management services.

Network management is the fastest growing area within network services. Furthermore, three-quarters of network management buyers use the same vendor for network support. Of those which do not use the same vendor for both network support and management, 60% intend to use the same vendor for both services within the next two years.

Hence, in order to benefit form the rapidly growing network management market, vendors must:

- Ensure that network support customers are satisfied
- Encourage network support customers to augment their support service with network management
- Focus strongly on providing network management services to the financial services sector where profit margins will be greatest.

B

Buyers Must be Satisfied With Network Support Offerings

INPUT asked network support buyers to reveal their levels of satisfaction with aspects of network support services provided by external suppliers.

Exhibit II-2 illustrates the aspects of network support services with which buyers expressed high levels of satisfaction.

Exhibit II-2

Aspects of Network Support — High Satisfaction Categories

Aspect	Satisfaction
Quality of Staff	4.3
Geographic Coverage	4.1
Coverage in terms of Time	4.1
On-Site Support	4.0
Network Installation	4

Satisfaction: 1 (Low) – 5 (High)

Sample: 60

Source: INPUT

German enterprises express very high levels of satisfaction with the quality of staff who provide network support. Most network support vendors now offer support contracts which include broad coverage both in terms of time and geography. INPUT research also indicates that buyers are highly satisfied with these aspects of network support. Furthermore, buyers express high levels of satisfaction with network installation, on-site support services and the quality of staff who deliver network support services.

The aspects of network support services with which buyers expressed lower levels of satisfaction are more interesting because they provide the best indication of ways in which network support services can be improved see (Exhibit II-3).

Exhibit II-3

Aspects of Network Support — Moderate Satisfaction Categories

Aspect	Satisfaction
Flexibility	3.8
Mutlivendor Capability	3.8
Proactive Support	3.8
Problem Resolution Times	3.8
Support Delivered via Internet	3.1

Satisfaction: 1 Low – 5 High

Sample: 60

Source: INPUT

Of the moderate satisfaction aspects of network support, problem resolution times and proactive support are the most significant. For each of these aspects, the difference between the perceived importance of each aspect and buyer satisfaction was high (see Exhibit II-4). These two areas require considerable improvement.

Exhibit II-4

Aspects of Network Support which Require the Most Improvement

Issue	Importance Rating	Satisfaction Rating	Difference
Problem Resolution Times	4.4	3.8	0.6
Proactive Support	4.2	3.8	0.4

Source: INPUT

Problems with networks increasingly interrupt mission critical business processes. Today, most enterprises can ill afford long problem resolution times. Indeed, as an increasing proportion of mission critical activity is underpinned by networks, buyers will seek lower problem resolution times and will expect to encounter problems less frequently. One way to reduce the probability of problems interrupting business process is to take a proactive approach. Such an approach is typically designed to minimise the occurrence of problems. However, INPUT research reveals that buyers of network support services do not believe that their service providers offer a proactive approach to support.

In order to deliver proactive support services most effectively, suppliers must also manage their customers' networks. If a supplier manages a network in addition to supporting it, it is well placed to:

- Prevent problems from occurring in the first place
- Minimize problem resolution times when problems do occur.

C

Vendors Must Encourage Customers To Augment Network Support Services With Network Management Services

A steadily growing proportion of enterprises depend on undersized, over-utilized network backbones. This is being caused by the many new applications such as videoconferencing and multimedia email, and the use of networks for mission critical business activities. Combined with the use of more host-based, centralized systems, current bandwidth requirements will at least triple in the next five years and. Furthermore, bandwidth requirements will become far more unpredictable.

Increasingly, enterprises are dealing with the issue of bandwidth shortages by managing network traffic and ensuring that networks are operating at optimum efficiency. Rather than replacing existing networks, most enterprises opt to upgrade network components where possible and focus to a greater extent on network management.

Hence, the network management market is growing rapidly (32% CAGR) and an increasing proportion of buyers are indeed augmenting their network support services with network management services. The market is being driven by the following:

- The shortage and expense of network management skills
- The rapidly changing nature of network management technology
- The increasing proportion of mission critical activities which are underpinned by networks and the use of networks for new applications such as videoconferencing and multimedia email.
- The increasing ability of external suppliers to offer truly 'best of breed' services.

However, it is also being inhibited by the following:

- The network is perceived to be too critical to core business activities to justify working with external suppliers. Buyers view network security breaches as a major threat

- External suppliers are often perceived to have an inadequate understanding of clients' businesses

- Network management software with comprehensive functionality is now available — many enterprises believe that this software will make managing their networks easier, thus minimising the need to work with external suppliers

- Enterprises are aware that the network management services market is immature so many are reluctant to risk purchasing a service, the delivery of which the vendor has had little experience.

Network management suppliers must work with buyers to encourage them to overcome their concerns. Indeed, of those enterprises which have chosen to purchase network management services from external vendors, satisfaction levels are high (see Exhibit II-5).

Exhibit II-5

Buyer Satisfaction Levels with LAN and WAN Management Services

Source: INPUT

Of particular concern to buyers considering purchasing network management services from external suppliers is the issue of network security.

Exhibit II-6 reveals the five most important network management issues to buyers.

Exhibit II-6

Important Network Management Issues

Issue	Importance (1 = Low, 5 = High)
Network Security	4.3
Proactive Problem Resolution	4.1
Configuration Management	4
Performance Management	3.9
Traffic Management	3.9

Sample: 60

Source: INPUT

Network security is the most important aspect of network management at present. Furthermore, the difference between satisfaction and importance levels which buyers attribute to network security is significant.

Today's networked IT environments are much more vulnerable to security breaches than proprietary mainframe environments. For this reason network security is now of critical importance to many enterprises.

Internal as well as external security breaches are now commonplace. Examples of security breaches which disrupted business processes includes the altering of intranet pages of interest and currency rates causing traders to lose millions of dollars on miscalculated deals.

In addition to the threat from hacking, the rise of networked IT environments has exposed enterprises to a greater risk from industrial espionage, email eavesdropping, sabotage, fraud, virus attack, data theft, and illicit funds transfer. Interestingly, the most common security problem is the unintentional corruption of files by unauthorized employees.

Proactive problem resolution is also very important to buyers. Users do not wish to suffer the consequences of a problem prior to resolution. They require proactive problem resolution which prevents problems from occurring in the first place.

D

Financial Services Sector Offers Greatest Network Management Opportunities

Although many financial services companies are reluctant to purchase network management services from external suppliers, those that work with external suppliers spend more on network management than organisations from other vertical sectors.

Exhibit II-7 shows the average amount spent on network management in the financial services, retail and manufacturing sectors.

Exhibit II-7

Average Amount Spent on Network Management by Industry

Industry	Amount Spent on Network Management (DM '000s)
Financial Services	260
Manufacturing	110
Retail	100

Sample: 60

Source: INPUT

On average, financial services companies spend more on network management contracts than organizations in other industry sectors. Indeed, when the amount spent per seat is calculated, it is clear that financial services companies spend much more than organizations from other industry sectors.

Exhibit II-8 shows that financial services companies spend DM1850 per seat on network management services.

Exhibit II-8

Average Amount Per Seat Spent on Network Management Services by Industry

Financial Services 1850

Retail 500

Manufacturing 340

0 200 400 600 800 1000 1200 1400 1600 1800 2000

Sample: 60

Amount Spent Per Seat on Network Management

Source: INPUT

Vendors can make the highest profits from providing network management services to the financial services sector. Note that network management services provided to banks tend to have the highest service levels. For example banks typically demand higher levels of availability and faster response times than organizations from other industry sectors.

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III

Market Development

This chapter analyses the development of the market for the lifecycle of network services in Germany and the dynamics that shape it. It analyses the markets for network planning and design services, network implementation service, network support services and network management services. However, it focuses strongly on the network support and management components of the lifecycle.

A
Network Planning and Design Services

Today's enterprise-wide networks are becoming increasingly complex. Buyers are faced with a bewildering array of networking technologies which could potentially be used to support their businesses. However, understanding which types of networking technology and which network infrastructures meet buyers' business objectives is difficult to say the least. For this reason buyers increasingly seek consultancy-style services from network services suppliers in order to ascertain the most appropriate networking infrastructure for their needs. Furthermore, in order to design networks to meet business objectives, buyers increasingly work with network services providers.

The market for network planning and design services is growing relatively rapidly (13% CAGR). Suppliers can make sizeable margins in this relatively immature market.

INPUT research reveals that the market for network planning and design services will grow from DM800 million in 1997 to DM1500 million in 2002 at 15% CAGR (see Exhibit III-1).

Exhibit III-1

Network Planning and Design Market in Germany, 1997-2002

Source: INPUT

B
Network Implementation Services

Many enterprise are implementing new networking architectures to support an increasing proportion of their business processes.

Enterprises are demanding ever higher levels of reliability, availability and security from their networks. Hence, many enterprises are either upgrading their network components on a regular basis or fundamentally re-engineering their network infrastructures to:

- Take advantage of Internet technology
- Implement switch technology which is perceived to be more powerful and cheap than rival technologies
- Implement ATM technology which is perceived to be the fastest, most reliable technology/protocol for high bandwidth or quality of service (QoS) applications.

However, the market for network implementation is maturing and profit margins are declining. For this reason, INPUT expects the market for network implementation to grow at a relatively low 8% CAGR between 1997 and 2002.

Exhibit III-2 shows that the market for network implementation is worth approximately DM200 million and is set to reach DM3000 million in 2002.

Exhibit III-2

Network Implementation Market in Germany, 1997-2002

Source: INPUT

C

Network Support Services

The market for the on-going support of networks is maturing. Although network support is the largest component of the network services market, it offers low profit margins. However, it is typically through the sale of network support contracts that suppliers can gain lucrative network management contracts. Note that network support and management are very often sold as part of the same contract.

Exhibit III-3

Network Support Market in Germany, 1997-2002

Market Size (DM millions)
5000
4000
3000
2000
1000
0
2700
4100
CAGR 9%
1997
2002

Source: INPUT

INPUT estimates that approximately 70% of enterprises purchase network support services from external suppliers. However, most large enterprises mix support services purchased from external suppliers with those delivered using in-house resources. Of those enterprises which purchase network support services from external suppliers, the proportion of their network support activities which are undertaken by external suppliers varies.

Exhibit III-4 illustrates the average proportions of LAN and WAN support activities which are carried out by external vendors for German enterprises. Additionally, it illustrates the average proportion of LAN and WAN support activity which will be undertaken by external suppliers in two years' time.

Exhibit III-4

Average Proportions of Network Support Activities Delivered by External Suppliers

	1997	1999
WAN Support	50	60
LAN Support	35	45

Proportion of Activities (%)

Source: INPUT

The increased criticality of WANs to today's enterprises has made the provision of WAN support a priority. Using WANs to take full advantage of Internet technology to develop infrastructures for electronic business and communication makes the support of WANs essential. However, most enterprises lack the resources to enable them to effectively support their WANs. Hence, the proportion of WAN support undertaken by external suppliers will increase significantly over the next two years.

LAN support skills are less scarce and many enterprises have invested heavily in internal LAN support infrastructures. Although the criticality of LANs to today's enterprises will increase, the proportion of LAN support provided by external suppliers will be smaller than that for WANs.

The proportions of network support purchased from external suppliers varies by vertical sector. Interestingly, enterprises within the financial services sector source a smaller proportion of their network support requirements from external suppliers than average.

Exhibit III-5 illustrates the proportions of LAN and WAN support activities which are carried out by external vendors for German financial services vendors.

Exhibit III-5

Average Proportions of Network Support Activities Delivered by External Suppliers within the Financial Services Sector

	1997	1999
WAN Support	30	40
LAN Support	20	30

Proportion of Activities (%)

0 10 20 30 40 50

Source: INPUT

In most areas, enterprises within the financial services sector lead the trend towards purchasing IT services from external suppliers. However, networks are critical to a very large proportion of processes within financial services enterprises. Problems which interrupt business processes which are dependent on networks can cost such enterprises millions of dollars. Furthermore financial services companies are particularly vulnerable to network security breaches. Until external suppliers can convince financial services companies that they offer truly 'best of breed' network support services and that their services guarantee network security as far as is possible, these enterprises will continue to be reluctant to source network support services from external suppliers.

Exhibit III-6 illustrates the proportions of LAN and WAN support activities which are carried out by external vendors for German manufacturing companies.

Exhibit III-6

Average Proportions of Network Support Activities Delivered by External Suppliers within the Manufacturing Sector

	1997	1999
WAN Support	55	65
LAN Support	50	55

Proportion of Activities (%)

Source: INPUT

Manufacturing companies intend to significantly increase both the proportion of LAN support and WAN support which they receive from external vendors. Cost control is paramount to most manufacturing companies, so suppliers must be demonstrating value for money with their network support offerings delivered to the manufacturing sector.

Exhibit III-7 illustrates the proportions of LAN and WAN support activities which are carried out by external vendors for German retailers.

Exhibit III-7

Average Proportions of Network Support Activities Delivered by External Suppliers within the Retail Sector

	1997	1999
WAN Support	60	70
LAN Support	40	50

Proportion of Activities (%)

Source: INPUT

The retail sector currently sources a relatively large proportion of its WAN support from external suppliers. This can be explained by the rapid adoption of WAN/Internet technology to connect the supply chain. Most retailers have not had the capacity to support their WANs so have readily sought assistance from external vendors.

The proportion of support activities carried out by an external supplier for an enterprise of course has a major bearing on the cost of the support contract. Indeed the cost of support contracts are affected by numerous other variables including:

- The number and complexity of hardware and software products used in the network
- The number of seats to be supported
- The network response times which a support contract guarantees
- The coverage in terms of time which is provided by the supplier

- The level of availability which is guaranteed within the support contract
- The level of business knowledge required from the supplier.

INPUT asked buyers of network support contracts to reveal the amount which they spent on network support from external suppliers over the past year (see Exhibit III-8).

Exhibit III-8

Amount Spent on Network Support Contracts

Amount	Proportion of Respondents (%)
Less than DM30K	15
DM31K-DM75K	15
DM76K-DM150K	19
DM151K-DM225K	7
DM226K-DM300K	0
DM301K-DM750K	11
DM751K-DM1.5M	18
Over DM1.5M	14

Sample: 56

Source: INPUT

INPUT research reveals that the average annual amount spent on network support by enterprises with annual revenues in excess of DM200 million is approximately DM200,000.

Exhibit III-9 shows the average amount spent on network support in the financial services, retail and manufacturing sectors.

Exhibit III-9

Average Amount Spent on Network Support by Industry

Industry	Amount Spent on Network Support (DM '000s)
Financial Services	250
Retail	180
Manufacturing	150

Sample: 60

Source: INPUT

Given that enterprises in the financial services sector tend to be more concerned with 'best of breed' services and less concerned with cost than other sectors, it is perhaps not surprising that financial services vendors, on average spend more on network support.

Perhaps not surprisingly, when the amount spent per seat on network support is calculated, enterprises from the financial services sector tend to spend a larger amount (see Exhibit III-10).

Exhibit III-10

Average Amount Per Seat Spent on Network Support by Industry

Financial Services
1000
Retail
800
Manufacturing
400
0 200 400 600 800 1000
Sample: 60
Amount Spent Per Seat on Network Support

Source: INPUT

Manufacturing companies tend to focus more strongly on cost reduction than other companies. This explains why manufacturing companies spend by far the least per seat on network support.

D

Network Management Services

The market for network management services is still relatively immature. Many enterprises are unwilling to purchase network management services from external suppliers for the following reasons:

- The network is perceived to be too critical to core business activities to justify working with external suppliers. Buyers view network security breaches as a major threat

- External suppliers are often perceived to have an inadequate understanding of clients' businesses

- Network management software with comprehensive functionality is now available — many enterprises believe that this software will make managing their networks easier, thus minimising the need to work with external suppliers

- Enterprises are aware that the network management services market is immature so many are reluctant to risk purchasing a service, the delivery of which the vendor has had little experience.

Nevertheless, the market for network management services is expected to grow rapidly for the following reasons:

- The shortage and expense of network management skills

- The rapidly changing nature of network management technology

- The increasing proportion of mission critical activities which are underpinned by networks

- The increasing ability of external suppliers to offer truly 'best of breed' services.

Indeed, the market for network management services in Germany is expected to grow at 32% CAGR from DM500 million in 1997 to DM2 billion in 2002 (see Exhibit III-11).

Exhibit III-11

Network Management Market in Germany, 1997-2002

Market Size (DM millions)

2000
1500
1000
500
0

500
2000
CAGR
32%

1997
2002

Source: INPUT

INPUT estimates that approximately 25% of German enterprises purchase network management services from external suppliers. However, the largest enterprises tend to mix network management services purchased from external suppliers with those delivered using in-house resources. Of those enterprises which purchase network management services from external suppliers, the proportion of their network management activities which are undertaken by external suppliers varies.

Exhibit III-12 illustrates the average proportions of LAN and WAN management activities which are carried out by external vendors. Additionally, it reveals the average proportion of LAN and WAN management activities which will be undertaken by external suppliers in two years' time.

Exhibit III-12

Average Proportions of Network Management Activities Delivered by External Suppliers

Source: INPUT

WAN management services are set to increase in importance. Increasingly, enterprises depend on WANs for the execution of business processes as WAN networking technology offers greater reliability, availability and security. Furthermore, WAN technology is becoming more complex and increasing volumes of data can be distributed via WANs. Although enterprises source a relatively small proportion of the network management services from external suppliers, a higher proportion of WAN management than of LAN management is being sourced from external suppliers.

The proportions of network management services sourced from external suppliers varies by vertical sector. Although enterprises within the financial services sector source a smaller proportion of their network support requirements from external suppliers than average, they source a higher proportion of their network management services from external suppliers.

Exhibit III-13 illustrates the proportions of LAN and WAN management activities within financial services companies which are carried out by external suppliers.

Exhibit III-13

Average Proportions of Network Management Activities Delivered by External Suppliers in the Financial Services Sector

WAN Management
15
25
1997
1999
LAN Management
15
20
0 5 10 15 20 25 30 35
Proportion of Activities (%)

Source: INPUT

Financial services companies purchase a relatively low proportion of their network management services from external suppliers. Many financial services companies do not believe that network management services offer the reliability, availability and security guarantees which they seek. Additionally, networks are invariably mission critical within financial services companies. Hence, there will be a reluctance to purchase services from external suppliers until the network management industry is perceived to be mature and to offer truly ‘best of breed’ services.

Exhibit III-14 illustrates the proportions of LAN and WAN management activities which are carried out by external vendors for manufacturing companies.

Exhibit III-14

Average Proportions of Network Management Activities Delivered by External Suppliers in the Manufacturing Sector

	1997	1999
WAN Management	25	35
LAN Management	30	35

Proportion of Activities (%)

Source: INPUT

Manufacturing companies will source an increasing proportion of their network management activity as network management services supplied externally are perceived to offer ever improving value for money. This can only occur as the industry matures.

Exhibit III-15 illustrates the proportions of LAN and WAN management activities which are carried out by external vendors for retail companies.

Exhibit III-15

Average Proportions of Network Management Activities Delivered by External Suppliers in the Retail Sector

	1997	1999
WAN Management	20	30
LAN Management	25	30

Proportion of Activities (%)

Source: INPUT

The use of private WANs to link the supply chain will increase in the retail sector. Hence, retail companies which seek to focus on their core competencies will purchase a significantly larger proportion of their WAN management activities from external suppliers in two years' time.

INPUT research shows that the average annual amount spent on network management by enterprises with annual revenues in excess of DM200 million is approximately DM135,000.

Exhibit III-16 shows the average amount spent on network management in the financial services, retail and manufacturing sectors.

Exhibit III-16

Average Amount Spent on Network Management Services by Industry

Industry	Amount Spent on Network Management (DM '000s)
Financial Services	200
Manufacturing	110
Retail	100

Sample: 60

Source: INPUT

Predictably, the financial services sector spends, on average, the largest amount on network management services.

However, the amount spent per seat on network management services varies greatly across industries (see Exhibit III-17).

Exhibit III-17

Average Amount Per Seat Spent on Network Management Services by Industry

Industry	Amount Spent Per Seat on Network Management (DM)
Financial Services	1850
Retail	500
Manufacturing	340

Sample: 60

Source:INPUT

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IV

Competition and Contract Arrangements

This chapter analyses user perceptions of suppliers of network services. Additionally, it examines the types of Service Levels Agreements (SLAs) which are made available to users of network services.

A
Service Levels Agreements For Network Services

While individual IT hardware and software components are more reliable today and less dependent on support than before, the infrastructure which connects IT environments is considerably more vulnerable to failure. For this reason, the importance of clear, unambiguous SLAs which meet business objectives is increasing.

Approximately 90% of buyers of network services have SLAs in place for their principal networks. Of those buyers who have SLAs, 65% have negotiated one with external vendors.

Exhibit IV-1 illustrates the proportions of customers who have internal SLAs, external SLAs and both internal and external SLAs.

Exhibit IV-1

Types of SLAs Held by Network Services Buyers for Principal Networks

Type	Proportion of Users (%)
External	50
Internal	35
Internal & External	15

Source: INPUT

As an increasing proportion of enterprises purchase network support and management services from external suppliers, it is important to focus on SLAs as SLAs often fail to match expectations. This is largely because vendors focus on devising SLAs which are more slanted towards their interests than those of their customers. However, it is ultimately the responsibility of buyers to ensure that SLAs are designed for their advantage in the first place. Buyers are in a strong position to incorporate the following into their SLAs:

- Quality standards such as response times, coverage and availability
- Procedures for change control, thus offering customers additional flexibility
- Penalties and bonuses.

Furthermore, SLAs should not be too generic. Such SLAs will be weak. Instead, they should specify cover for individual components of an IT environment.

INPUT asked buyers to reveal levels of availability and coverage terms within their SLAs, both internal and external.

Exhibit IV-2 reveals availability levels which are incorporated into external SLAs.

Exhibit IV-2

External Guaranteed Levels of Availability

Levels of Availabilit	Proportion of Buyers (%)
90% - 95%	9
95%-97%	12
97%-99%	26
99%-99.5%	15
Over 99.5%	15
No Availability Guarantee	23

0 10 20 30

Sample: 34

Source: INPUT

Of those buyers who purchased SLAs with availability guarantees from external suppliers, over a quarter purchased contracts which guaranteed availability for 97%-99% of the time. Interestingly, nearly a quarter incorporated no availability guarantee into their SLAs. As networks become increasingly mission critical to enterprises, buyers will seek higher levels of availability.

Exhibit IV-3 illustrates internal guaranteed levels of availability.

Exhibit IV-3

Internal Guaranteed Levels of Availability

Levels of Availabilit

90% - 95% 23
95%-97% 0
97%-99% 29
99%-99.5% 11
Over 99.5% 11
No Availability Guarantee 25

0 10 20 30 40 50

Proportion of Buyers (%)

Sample: 35

Source: INPUT

Levels of availability which are incorporated into internal SLAs are not dissimilar to those offered by external SLAs. Suppliers must offer higher levels of availability to buyers than can be provided using in-house resources in order to encourage enterprises to purchase network support and management services from external vendors.

It is necessary for many networks to undertake mission critical business activity outside normal business hours. For example, many networks used in banking must be operational at all times.

Nearly 60% of SLAs negotiated with external suppliers include 24x7 cover.

Exhibit IV-4 shows the service coverage in terms of time customers' external SLA guarantees.

Exhibit IV-4

Guaranteed Periods of Service Cover with External SLAs

SLA Coverage	Proportion of Buyers (%)
24x7 Coverage	58
24x5 Coverage	18
Business Hours	24

Sample:33

Source: INPUT

Only a slightly lower proportion of SLAs negotiated with in-house service providers offer 24x7 coverage. Approximately 50% of network services buyers receive 24x7 cover from their internal support infrastructure.

Exhibit IV-5 shows the service coverage in terms of time that customers' internal SLA guarantees.

Exhibit IV-5

Guaranteed Periods of Service Cover with Internal SLAs

SLA Coverage	Proportion of Buyers (%)
24x7 Coverage	52
24x5 Coverage	8
Business Hours	32
No Service Coverage	8

Sample: 36

Source: INPUT

At present SLAs are of particular importance for the support and management of WANs especially where vendors are leasing network bandwidth. Unambiguous SLAs are essential for virtual private networks (VPNs), managed carrier services and Internet business systems like Intranets and extranets.

Interestingly, an SLA monitoring software market has emerged. Software is now available which helps to monitor SLAs such as Openview, and Micromuse's Netcool range of management software. BT uses X-Cell's Net-Tell package.

B

Enterprises Seek One Supplier For Network Support And Management Activities

At present telecommunications vendors are well positioned to benefit from the services market centered around WANs. Indeed many telecommunications vendors such as NTT, AT&T, Cable & Wireless and BT are leveraging their existing expertise to position themselves as end-to-end service provides for large and small companies, offering both WAN and LAN expertise.

Other network services vendors are becoming increasingly reluctant to offer support for components of IT environments that are beyond their control. For example many vendors do not offer guaranteed fix times for WAN links because they normally need to work closely with telecommunications vendors for this kind of task but do not wish to be held accountable for the failure of telecommunications vendors.

However, it is clear that many services vendors are working very closely with telecommunications vendors in order to offer support services for both LANs and WANs. INPUT research reveals that approximately three-quarters of network services buyers purchase LAN and WAN support from the same supplier.

Customers were asked to indicate the likelihood of using the same supplier for both LAN and WAN support within the next two years (see Exhibit IV-6).

Exhibit IV-6

Likelihood of Using Same Supplier for LAN and WAN Support within Two Years

No. of Responses

	1	2	3	4	5
No. of Responses	8	2	16	8	15

Sample: 49

Source: INPUT

Around half of German buyers indicate that it is likely that they will purchase both LAN and WAN support from the same supplier within the next two years.. However, it is clear that a significant number of buyers have reservations with using the same supplier for both LAN and WAN support.

Buyers are aware that LAN and WAN support require different types of expertise and that no single supplier can offer truly 'best of breed' support for both LANs and WANs on a global basis.

Sixty-three per cent of network management buyers purchase LAN and WAN management services from the same supplier.

Customers were asked to indicate the likelihood of using the same supplier for both LAN and WAN management services within the next two years (see Exhibit IV-7).

Exhibit IV-7

Likelihood of Using Same Supplier for LAN and WAN Management within Two Years

Sample: 32

Source: INPUT

In the network services market, there is a definite trend towards lowering the number of network services suppliers. Increasingly, enterprises seek suppliers with end-to-end network support and management capabilities.

Indeed nearly 75% of network management buyers purchase both network support and network management services from the same supplier. Of those that do not purchase network support from the same supplier, around 60% indicated that they are likely to do so in the next two years.

C
Market Positioning

Services vendors currently market their network services as a lifecycle which includes:

- Network planning and design services
- Network implementation services
- Network support services
- Network management services.

Network planning and design services and network implementation services tend to be 'one off' activities. Network support and network management, on the other hand, are on-going activities. For this reason, vendors tend to focus strongly on the provision of support and management services within the network services lifecycle.

However, vendors generate the largest profit margins from the provision of network management services. The market for network management services is growing very rapidly, hence vendors are keen to sell network management services in addition to any other network service.

INPUT asked users of network management services to indicate whether or not they are aware of major network management vendors in the Germany. Additionally, users were asked to indicate their perceptions of the network management capabilities of vendors of whom they are aware on a scale of 1 to 5 (where 1 = low capability and 5 = high capability). A score of 3 is taken to represent medium capability; awareness of a vendor by 30% of network management buyers represents medium awareness.

Exhibit IV-8 illustrates user perceptions of major network management vendors in the Germany.

Exhibit IV-8

Buyer Perceptions of Major Network Management Vendors in Germany

Perceived Capability
High
Medium
Low
IBM
H-P
Sun
SNI
Digital
Info AG
CompuNet
Unisys
Rank Xerox
Olsy
Bull
NCR
Wang
Market Visibility
Low
Medium
High

Source: INPUT

IBM, H-P, SNI, Sun, Digital, Info AG and CompuNet are well placed in terms of buyer perceptions of their activities. They are recognized as network management vendors and perceived to have strong network management capabilities. Although the other vendors illustrated in Exhibit IV-8 offer network management services, they have yet to convince German enterprises of their capabilities as network management vendors.

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V

Buyer Attitudes

This chapter analyses buyer attitudes towards network support and management services provided by external suppliers.

A
Buyer Attitudes to Network Support

Despite the differing capabilities which are required for LAN and WAN support services, buyer satisfaction levels are the same. In fact, INPUT a score of 3.8 or above is taken by INPUT to indicate a high level of satisfaction (see Exhibit V-1).

Exhibit V-1

Buyer Satisfaction with LAN & WAN Support Services

Source: INPUT

INPUT asked network support buyers to reveal their attitudes towards aspects of network support services in terms of importance and satisfaction. Exhibit V-2 illustrates customer satisfaction and perceived importance levels which can be attributed to aspects of network support services provided by external suppliers.

Exhibit V-2

Ratings of Network Support Issues

Issue	Importance Rating	Satisfaction Rating	Difference
Problem Resolution Times	4.4	3.8	0.6
Coverage in terms of Time	4.3	4.1	0.2
Quality of Staff	4.2	4.3	-0.1
Proactive Support	4.2	3.8	0.4
Cost/Benefit Ratio	4.1	3.8	0.3
Flexibility	4.1	3.8	0.3
Geographic Coverage	4.1	4.1	0.0
Telephone Response Times	4.1	4.0	0.1
Network Installation	4.0	4.0	0.0
On-Site Support	3.9	4.0	-0.1
Multivendor Support	3.8	3.8	0.0
Support Delivered via Internet	3.3	3.1	0.2

Source: INPUT

Not surprisingly, problem resolution times are perceived by network support buyers to be the most important aspect of network support services. However, there is considerable scope for improvement. The difference between average satisfaction and importance levels for problem resolution times is high

Vendors must be perceived to be offering more proactive services — vendors are still considered to take a reactive approach to network support despite a greater awareness of the need to offer proactive support services.

Most network support vendors now offer support contracts which include broad coverage both in terms of time and geography. INPUT research indicates that buyers are highly satisfied with these aspects of network support.

The ability of the Internet to act as a support medium is limited. Indeed, the delivery of network via the Internet is not considered to be an important aspect of network support offerings. At present it only acts as filter for some problems and is used largely to reduce call volume and assist support buyers to escalate their own problems. However

Exhibit V-3 illustrates customer perceptions of the importance of aspects of network support in two years' time.

Exhibit V-3

Importance of Aspects of Network Support in Two Years' Time

Sample: 60

Source: INPUT

German buyers believe that in two years' time, the importance of many aspects of network support will increase. In particular, the importance of high caliber staff, multivendor support, on-site support and support delivered via the Internet will increase significantly. Indeed, buyers expect the Internet to increasingly be used as a support medium. Most other aspects of network support are expected to remain broadly similar in importance over the next two years.

Exhibit V-4 shows the ways in which network support could be improved.

Exhibit V-4

Improvements to Network Support Services

	Number of Mentions
Improved Staff Skills/More Staff	13
Faster Resolution Times	9
More Reliable Service	6
Increased Flexibility	6
Better Communications	5

0 5 10 15

Number of Mentions

Source: INPUT

When buyers were asked to indicate ways in which they believe that network support could be improved unprompted, improved staff skills/more staff, faster resolution times, a more reliable service, increased flexibility and better communications were mentioned frequently.

B

Buyer Attitudes to Network Management

Network management services are becoming increasingly important as networks themselves become critical to an increasing proportion of business processes.

Exhibit V-5 shows buyer satisfaction levels with LAN and WAN management services.

Exhibit V-5

Buyer Satisfaction Levels with LAN and WAN Management Services

	Satisfaction (1 = Low, 5 = High)
LAN Management	4.2
WAN Management	4.2

Sample: 30

Source: INPUT

Overall satisfaction levels with network management services are high. Although many users express reluctance to subcontract the management of their networks, those that do are typically satisfied.

INPUT asked buyers of network management services to attribute levels of importance and levels of satisfaction to aspects of network management services (see Exhibit V-6).

Exhibit V-6

Ratings of Network Management Issues

Issue	Importance Rating	Satisfaction Rating	Difference
Network Security	4.3	4.1	0.2
Reliability & Manageability	4.2	4.0	0.2
Proactive Problem Resolution	4.1	3.8	0.3
Configuration Management	4.0	3.9	0.1
Performance Management	4.0	3.8	0.2
Traffic Management	3.9	4.0	-0.1
Capacity Management	3.9	3.9	0.0
Cost/Performance	3.9	3.8	0.1
Network Optimisation	3.8	3.7	0.1
Planning & Design	3.7	3.7	0.0

Source: INPUT

Network security is the most important aspect of network management at present. Furthermore, the difference between satisfaction and importance levels which buyers attribute to network security is significant.

Today's networked IT environments are much more vulnerable to security breaches than proprietary mainframe environments. For this reason network security is now of critical importance to many enterprises.

Internal as well as external security breaches are now commonplace. Examples of security breaches which disrupted business processes includes the altering of intranet pages of interest and currency rates causing traders to lose millions of dollars on miscalculated deals.

In addition to the threat from hacking, the rise of networked IT environments has exposed enterprises to a greater risk from industrial espionage, email eavesdropping, sabotage, fraud, virus attack, data theft, and illicit funds transfer. Interestingly, the most common security

problem is the unintentional corruption of files by unauthorized employees.

Reliability and manageability of the network together with proactive problem resolution which involves use of the network are also very important aspects of network management.

Exhibit V-7 illustrates the importance of a number of network management issues to enterprises in two years' time.

Exhibit V-7

Importance of to Network Management Issues in Two Years' Time

Issue	Importance (1 = Low, 5 = High)
Reliability & Manageability	4.7
Network Security	4.6
Traffic Management	4.4
Cost/Performance	4.3
Proactive Problem Resolution	4.3
Performance Management	4.3
Configuration Management	4.3
Capacity Management	4.3
Planning & Design	4.2
Network Optimisation	4.2

Sample: 60

Source: INPUT

Network management buyers expect the broadly the same aspects of network management to be the most important over the next two years.

Exhibit V-8 shows ways in which network management buyers believe that network management services could be improved.

Exhibit V-8

Improvements to Network Management Services

	Number of Mentions
Greater Reliability	8
Better Use of Network Mgt. Software	7
More Proactive Approach	5

Source: INPUT

Network management services are still relatively immature. Hence, perhaps not surprisingly, many buyers believe that network management services could be made more reliable.

A more proactive approach to network management which seeks to optimize the network for business processes would enhance network management services. Additionally, fully utilizing the functionality of network management is perceived to improve the effectiveness of network management services.

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A

Network Management User Perceptions

This appendix illustrates the perceptions of services vendors held by 60 network management user in Germany

Users were asked to indicate their perceptions of the capability of a number of vendors as network management suppliers where 1 = low capability and 5 = high capability.

A Bull

13 interviewees are aware of Bull as a network management services supplier.

Exhibit A-1

Capability rating	Number of Occurrences
1 (Low Capability)	2
2	3
3	4
4	4
5 (High Capability)	0

Source: INPUT

B
CompuNet

26 interviewees are aware of CompuNet as a network management services supplier.

Exhibit A-2

Number of Occurrences

Capability	1 (Low Capability)	2	3	4	5 (High Capability)
Number of Occurrences	4	3	9	5	5

Source: INPUT

C
Digital

24 interviewees are aware of Digital as a network management services supplier.

Exhibit A-3

Capability	1 (Low Capability)	2	3	4	5 (High Capability)
Number of Occurrences	2	3	6	9	4

Source: INPUT

D

IBM

42 interviewees are aware of IBM as a network management services supplier.

Exhibit A-4

Source: INPUT

E

Info AG

25 interviewees are aware of Info AG as a network management services supplier.

Exhibit A-5

Source: INPUT

F
H-P

37 interviewees are aware of H-P as a network management services supplier.

Exhibit A-6

Number of Occurrences

20
15
10
5
0

2 2 7 15 11

1 2 3 4 5

Low Capability High Capability

Source: INPUT

G
NCR

14 interviewees are aware of NCR as a network management services supplier.

Exhibit A-7

Number of Occurrences

10
8
6
4
2
0

3 3 3 5 0

1 2 3 4 5

Low Capability High Capability

Source: INPUT

H
Olsy

7 interviewees are aware of Olsy as a network management services supplier.

Exhibit A-8

Capability rating	Number of Occurrences
1 (Low Capability)	2
2	0
3	3
4	2
5 (High Capability)	0

Source: INPUT

I
Rank Xerox

20 interviewees are aware of Rank Xerox as a network management services supplier.

Exhibit A-9

Capability rating	Number of Occurrences
1 (Low Capability)	3
2	4
3	8
4	4
5 (High Capability)	1

Source: INPUT

J

SNI

30 interviewees are aware of SNI as a network management services supplier.

Exhibit A-10

Capability rating	Number of Occurrences
1 (Low Capability)	2
2	2
3	9
4	12
5 (High Capability)	5

Source: INPUT

K

Sun

25 interviewees are aware of Sun as a network management services supplier.

Exhibit A-11

Capability rating	Number of Occurrences
1 (Low Capability)	2
2	1
3	5
4	14
5 (High Capability)	3

Source: INPUT

L
Unisys

11 interviewees are aware of Unisys as a network management services supplier.

Exhibit A-12

M
Wang

10 interviewees are aware of Wang as a network management services supplier.

Exhibit A-13

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B

Questionnaire

This questionnaire will provide information relating to the network management and support markets.

For the purposes of this survey:

- Network support can be defined as maintenance activities that relate to networking equipment and networking software. Activities include associated support activities such as telephone support, problem analysis and on-site support

- Network management can be defined as the ongoing delivery of a set of activities which are required for controlling, planning, allocating, deploying, co-ordinating, and monitoring the a network. Activities include traffic routing, configuration management, security management, and performance management.

Screening Question

1. Do you currently purchase any network support services from an external vendor?

   Yes __________
   No __________

   If no, please terminate the interview.

IT Environment

2. Please indicate which of the following is your principal LAN protocol. Additionally, please indicate which you expect to be your principal LAN protocol in 2 years' time.

LAN	In 2 years' time	(Y/N)
ATM		
Netware		
IP		
DECNet		
SNA		

3. Please indicate which of the following is your principal WAN protocol. Additionally, please indicate which you expect to be your principal WAN protocol in 2 years' time.

WAN	In 2 years' time	(Y/N)
ATM		
Frame Relay		
X.25		
OSI		
IP		

4. Which of the following does your networked environment include and which do you think will be more commonplace in 2 years' time?

	Y/N	More Common in 2 years Y/N
NT Servers	______	______
UNIX Servers	______	______
Mainframes/datacenters	______	______
Hubs	______	______
Switches	______	______
Routers	______	______
Corporate Intranet(s)	______	______
Proprietary Midrange platforms (e.g. AS/400)	______	______
Standalone PCs	______	______
X Terminals	______	______
Network Computers	______	______
Multiplexers	______	______

5. Please indicate the number of users, sites and departments supported by your principal network.

Users	Sites	Departments
______	______	______

SLAs

6a. Do you have a Service Level Agreement (SLA) in place for your principal network?.

Yes ______

No ______

6b. If yes, is the SLA an external or internal agreement or both?

Internal	External	Internal & External
____	____	____

6c. If external, please name the supplier with whom it was agreed.

Supplier ______

7. What network availability guarantees does your network support/management SLA include? Please indicate whether these guarantees are internal or external.

	Internal	External
90%-95% availability	____	____
95%-97% availability	____	____
97%-99% availability	____	____
99% - 99.5% availability	____	____
Over 99.5% availability	____	____
No availability guarantee	____	____

8. What service coverage does your SLA guarantee? Please indicate whether this is an internal or external SLA

	Internal	External
24x7 Coverage	____	____
24x5 Coverage	____	____
Business hours	____	____
Response Times	____	____
No service coverage	____	____
Other (please specify)	____	____

Network Support - Usage

9. Please indicate which supplier provides most support services for your principal WAN and which provides most support services for your principal LAN. Please indicate your level of satisfaction with the services provided by your supplier (1=very low, 5=very high).

   Additionally, please indicate the likelihood of your organization using a common supplier for both LAN and WAN support in 2 years' time (1=low, 5=high).

	Supplier	Satisfaction(1-5)	Likelihood (1-5)
WAN		___	___
LAN		___	___

10. If you are unlikely to purchase both your LAN and WAN support from the same supplier, please indicate why.

    ____

    ____

11 Please indicate what proportion (%) of your LAN and WAN support activities are currently performed by external suppliers and what proportion (%) you expect to be carried out by external suppliers in 2 years'.

	%	% in 2 years
LAN support	___	___
WAN support	___	___

Network Support - Satisfaction

12. Please indicate your level of satisfaction with the following elements of network support (1=very low, 5=very high).

    Additionally, please indicate the current importance of each service element to your organization and how important you believe each element will be in 2 years' time (1=very low, 5=very high).

	Satisfaction (1-5)	Importance (1-5)	Importance in 2 years
Coverage in terms of time	________	________	________
Proactive support	________	________	________
Cost/Benefit ratio	________	________	________
Flexibility	________	________	________
Multivendor capability	________	________	________
Quality of staff	________	________	________
Problem resolution times	________	________	________
Telephone response times	________	________	________
Geographic coverage	________	________	________
Network installation	________	________	________
On-site support	________	________	________
Problem diagnosis	________	________	________
Support delivered via Internet	________	________	________

13. In what ways do you believe that your network support services could be improved?

____

14. How do you expect your network support service requirements to change over the next two years?

____

Network Support - Costs

15. Please estimate how much you have spent on network support over the past year. If you cannot estimate a figure, please estimate the range in which it falls.

Less than £10,000	______
£10,000 to £25,000	______
£25,000 to £50,000	______
£50,000 to £75,000	______
£75,000 to £100,000	______
£100,000 to £250,000	______
£250,000 to £500,000	______
Over £500,000	______

16. Please indicate the number of seats or people that use network support services within your organization?

____

Network Management - Usage

17. Please indicate what proportion (%) of the following activities are currently performed by external suppliers and what proportion (%) you expect to be carried out by external suppliers in 2 years'.

	%	% in 2 years
LAN management	______	______
WAN management	______	______

18. If you purchase a significant proportion of your network management services from an external vendor, please indicate which supplier provides most management services for your principal WAN and which provides most management services for your principal LAN.

    Please indicate your level of satisfaction with the services provided by your supplier (1=very low, 5=very high).Additionally, please indicate the likelihood of your organization using a common supplier for both LAN and WAN management in 2 years' time (1=low, 5=high).

	Supplier	Satisfaction(1-5)	Likelihood (1-5)
WAN	______	______	______
LAN	______	______	______

19. If you are unlikely to purchase both your LAN and WAN management from the same supplier, please indicate why.

    ____

    ____

Network Management - Satisfaction

20. Please indicate the importance of the following network management issues to your organization and how satisfied you are with the way in which they are handled today.

    Additionally, please indicate how important you believe these issues will be in 2 years' time (1=very low, 5=very high).

	Importance Today (1-5)	Satisfaction (1-5)	Importance in 2 years (1-5)
Network security	______	______	______
Planning and Design	______	______	______
Intranet/Extranet Usage	______	______	______
Electronic Business	______	______	______
Network optimisation	______	______	______
Networked systems management	______	______	______
Proactive problem resolution	______	______	______
Traffic management	______	______	______
Reliability and manageability	______	______	______
Capacity Management	______	______	______
Configuration Management	______	______	______
Performance Management	______	______	______
Accounting Management	______	______	______
Cost/Performance	______	______	______

21. In what ways could your network management be improved?

____

22. How do you expect your network management requirements to change over the next two years?

____

Tools/Frameworks

23. Do you use any of the following network/systems management tools/frameworks? If so, please indicate your level of satisfaction with it/them (1=very low, 5=very high)

	Y/N	Satisfaction(1-5)
CA Unicenter	______	______
Tivoli TME	______	______
HP Openview	______	______
MS SMS	______	______
Other (please specify)	______	______

24. What do you perceive to be the strengths of the network/systems management tools/frameworks which you use?

____

25. What do you perceive to be the weaknesses of the network/systems management tools/frameworks which you use?

____

26 If you do not already purchase network support and management services from the same vendor, please indicate how likely it is that you will do so in the next 2 years (1=very low, 5=very high).

Importance (1-5) ______

Network Management - Vendor Selection

27. Please indicate whether or not you would consider using any of the following vendors for network management services. Additionally, please indicate your impression of each vendor's network management capabilities (1=low capability, 5=high capability). *Please rotate.*

	Consider (Y/N)	Capability (1-5)
IBM	________	________
H-P	________	________
Digital	________	________
ICL	________	________
Olsy	________	________
Bull	________	________
NCR	________	________
Unisys	________	________
Wang	________	________
SNI	________	________
Rank Xerox	________	________
Sun	________	________

28. Please estimate how much you have spent on network management over the past year. If you cannot estimate a figure, please estimate the range in which it falls.

Less than £10,000 ________

£10,000 to £25,000 ________

£25,000 to £50,000 ________

£50,000 to £75,000 ________

£75,000 to £100,000 ________

£100,000 to £250,000 ______

£250,000 to £500,000 ______

Over £500,000 ______

29. Please indicate the number of seats or people that use network management services within your organization .

______

Thank you very much for your time and assistance with this questionnaire

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